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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/722,933

11/26/2003

Asif Q. Khan

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9641

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02/05/2008

EXAMINER

O'CONNOR, BRIAN T

ART UNIT

PAPER NUMBER

2619

MAIL DATE

DELIVERY MODE

02/05/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/722,933

Applicant(s)

KHAN ET AL.

Examiner

Brian T. O'Connor

Art Unit

2619

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/ are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This office action is in response to Applicant's amendment filed on 11/20/2007.
2. Claim 20 has been amended. Claims 1-20 are currently pending.
3. Due to Applicant's amendment of claim 20, the 35 USC 101 rejection and claim objection of claim 20 is withdrawn. Due to Applicant's amendment of the Abstract, the objection to the specification is withdrawn.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anconetani et al. (US 7,120,153; hereafter Anconetani).

With respect to claims 1 and 19, Anconetani discloses a method and processor (72 of Figure 7; 72, 102 of Figure 10) for transferring ATM data cells between an ATM network (12 of Figure 7) and a PSTN class-4 or class-5 switch (78 of Figure 7). The processor includes scheduling circuits (204, 208 of Figure 11) to schedule the ATM data cells for transmission from a from of virtual circuits (VC1, VC2 of Figure 7) or telephone port modules (76 of Figure 7) and conducts the scheduling by using a calendar table (206 of Figure 11; viewed as a first table) and a context table (202 of Figure 11; viewed as a second table). Also present in the processor is a memory module (210 of Figure 11) provided to support the scheduling and store parts of calendar table..

The calendar table is build from calendar entries (Figure 11; viewed as a first list of entries) and calendar bins (Figure 11; viewed as a second list of entries) related to virtual circuits that produce the ATM data cells (column 9, lines 26-46). The table has an array of

link lists, one of ordinary skill in the art would recognize this array of lists as a table pointer, used to track a conformance time for transmitting at a determined rate (column 9, lines 16-22). Cells with different ATM service contracts have differing priorities for transmission (column 9, lines 29-31).

The context table has a group of entries for each VC (column 9, lines 48-55) and schedules ATM data cells according to minimum period for a connection and leaky bucket state in the calendar table (column 9, lines 50-55; viewed as a different scheduling algorithm from the calendar table). The context table will decide when to transmit a cell (column 10, lines 4-8) based on a scheduling period or rate (Tpcr; column 9, line 64 – column 10, line 3).

Anconetani does not disclose any context table pointer used to identify a current entry as being ready for transmission.

Office Notice is taken that both the practice and benefit of using pointers with memory for implementing an algorithm are well known and expected in the art. It would have been obvious to use pointers to identify the packets ready for transmission in the table of Anconetani as the use of pointers is known to provide smaller and faster algorithm execution in the memory of devices.

With respect to claim 2, Anconetani further discloses the calendar table used a group of FIFO lists (210 of Figure 11) and an array of link lists (column 9, lines 16-22)

With respect to claim 3, Anconetani further discloses the calendar table has an array of link lists, one of ordinary skill in the art would recognize this array of lists as a table pointer, used to track a conformance time for transmitting at a determined rate (column 9, lines 16-22; viewed as identifying the lists as active)

With respect to claim 4, Anconetani further discloses the scheduling algorithm looks through the calendar entries and calendar bins for ATM data cells to transmit and once

found the cell is evaluated for conformance and then set as ready to transmit (column 9, lines 25-36).

With respect to claim 5, Anconetani further discloses placing cells in en-queue or de-queue processes depending on the leaky bucket state and TPCR (column 11, lines 49-66; viewed as creating an active list and a pending list and TPCR is viewed as a programmable time interval).

With respect to claim 6, Anconetani further discloses that when a cell en-queue process has finished all its cells it is then switched to a cell de-queue process (column 13, lines 36-40).

With respect to claim 7, Anconetani further discloses that the context table will keep track of cells based upon TPCR (column 9, line 64 – column 10, line 3).

With respect to claim 8, Anconetani further discloses that the context table has multiple slots (202 of Figure 11).

With respect to claim 9, Anconetani further discloses that the processor runs on a finite timer (column 12, lines 27-32) and that the state of ATM data cells is updated based on the progression of the timer.

With respect to claim 10, Anconetani further discloses that each VC held in the context table can have a separate TPCR for transmission rates (column 9, lines 48-52).

With respect to claim 11, Anconetani further discloses that the context table can hold a leaky bucket state for each VC that is evaluated periodically and that the context table also holds a separate TPCR for transmission rates (column 9, lines 48-52).

With respect to claim 12, Anconetani further discloses that TPCRs are programmable (column 12, lines 33-40; where the TPCR is set to a maximum to stop the leaky bucket logic).

With respect to claim 13, Anconetani further discloses that a data block moves through the scheduler and is not in a calendar table and a context table at the same time (Figure 14).

With respect to claim 14, Anconetani further discloses a round robin service for the scheduler (column 11, lines 32-37).

With respect to claim 15, Anconetani further discloses a constant bit rate scheduling algorithm (column 9, lines 15-22) and that the context table will control when a cell is ready for transmission thereby controlling a bit rate.

With respect to claim 16, Anconetani further discloses that the memory (210 of Figure 11) is internal memory.

With respect to claim 17, Anconetani further discloses data packets or ATM cells as data blocks (column 7, lines 45-48).

With respect to claim 18, Anconetani further discloses a network processor integrated circuit (ATM Ingress Port of Figure 10) to move data between an ATM network (12 of Figure 7) and a PSTN class-4 or class-5 switch (78 of Figure 7).

6. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anconetani and further in view of Kumar et al. (US 7,085,279 hereafter Kumar).

With respect to claim 20, Anconetani discloses a method using a processor (72 of Figure 7; 72, 102 of Figure 10) for transferring ATM data cells between an ATM network (12 of Figure 7) and a PSTN class-4 or class-5 switch (78 of Figure 7). The processor includes scheduling circuits (204, 208 of Figure 11) to schedule the ATM data cells for transmission from a from of virtual circuits (VC1, VC2 of Figure 7) or telephone port modules (76 of Figure 7) and conducts the scheduling by using a calendar table (206 of Figure 11; viewed as a first table) and a context table (202 of Figure 11; viewed as a second table). Also

present in the processor is a memory module (210 of Figure 11) provided to support the scheduling and store parts of calendar table.

The calendar table is build from calendar entries (Figure 11; viewed as a first list of entries) and calendar bins (Figure 11; viewed as a second list of entries) related to virtual circuits that produce the ATM data cells (column 9, lines 26-46). The table has an array of link lists, one of ordinary skill in the art would recognize this array of lists as a table pointer, used to track a conformance time for transmitting at a determined rate (column 9, lines 16-22). Cells with different ATM service contracts have differing priorities for transmission (column 9, lines 29-31).

The context table has a group of entries for each VC (column 9, lines 48-55) and schedules ATM data cells according to minimum period for a connection and leaky bucket state in the calendar table (column 9, lines 50-55; viewed as a different scheduling algorithm from the calendar table). The context table will decide when to transmit a cell (column 10, lines 4-8) based on a scheduling period or rate (Tpcr; column 9, line 64 – column 10, line 3).

Anconetani does not disclose a context table pointer used to identify a current entry as being ready for transmission.

Office Notice is taken that both the practice and benefit of using pointers with memory for implementing an algorithm are well known and expected in the art. It would have been obvious to use pointers to identify the packets ready for transmission in the table of Anconetani as the use of pointers is known to provide smaller and faster algorithm execution in the memory of devices.

However, Anconetani fails to disclose a machine-readable medium for storing a software programs.

Kumar, in the same field of endeavor, discloses a computer readable medium storing a program to perform a connection setup over a packet network in conjunction with a switching network. The computer-readable medium is an electronic, magnetic, optical, or other physical device or means that can be contain or store a computer program for use by or in connection with a computer-related system or method (column 7, lines 51-67). One skilled in the art would have clearly recognized that the method of Anconetani would have been implemented in a software module. The implemented software would perform the function with less expense and more flexibility. Therefore, it would have been obvious to have use the technique in Anconetani as is and implement it as taught by Kumar in order to reduce cost and improve the adaptability and flexibility of the networking system.

Response to Arguments

7. Applicant's arguments filed on 11/20/2007 have been fully considered but they are not persuasive.

(A) Applicant argues, on pg 11 (first full paragraph), with respect to claims 1, 19, and 20 that Anconetani does not disclose a "second table configurable to include a plurality of entries corresponding to transmission elements for which data blocks are to be scheduled in accordance with at least a second scheduling algorithm different than the first scheduling algorithm" by teaching a context table (202 of Figure 11).

The Examiner maintains that the context table (202 of Figure 11), as taught by Anconetani, is a second table in a processor and is configured to use a second scheduling algorithm, context logic (204 of Figure 11). The context logic (204 of Figure 11) is different from the calendar logic or first scheduling algorithm (208 of Figure 11). The entries (Tpcr, X, Reset, Qlength, Max of Figure 11) correspond or relate to transmission elements for data blocks to be transmitted (column 9, lines 48-55), for instance the variable Max contains the

maximum number of simultaneous calendar entries in the calendar table (first table) and FIFO buffer. The Examiner notes that claim 1 defines the invention using "second table configurable" and "entries corresponding to transmission elements" and that these claim language terms allow the claim to be viewed broadly.

(B) Applicant argues, on pg 12 (first full paragraph), with respect to claims 1, 19, and 20 that Anconetani does not disclose "entries establishing a scheduling rate for a transmission element, the scheduler maintaining a second table pointer identifying a current one of the second table entries as being eligible for transmission".

The Examiner maintains that Anconetani's processor uses a cell scheduler (102 of Figure 10) to check an entry in the context table (202 of Figure 11). For instance, the call scheduler makes a check of the Tpcr (minimum transmit period), which is contained in the context table, to determine if a new cell is ready for transmission (column 9, line 62 -- column 10, line 9). Thus an entry in the context table is used by the scheduler for checking the conformant or eligibility of a cell or packet for transmission.

(C) Applicant argues, on pg 13 (first full paragraph), with respect to claims 1, 19, and 20 that the Examiner has make an improper *prima facie* case of obviousness by using a conclusory statement with respect to pointers (a feature not taught by Anconetani).

The Examiner used Office Notice (MPEP § 2144.03) that the use of pointers is well known in the art. Support for the use of pointers in the art is found in Gemar (US 6,414,963), see Figure 3 and 12C, Gemar teaches the use of pointers in scheduling (column 19, lines 60-67).

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian T. O'Connor whose telephone number is 571-270-1081. The examiner can normally be reached on 9:00AM-6:30PM, M-F, 1st Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


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BTO

Brian T. O'Connor
January 30, 2008
Patent Examiner


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